have. The south aisles, both of the nave and chancel, are evidently additions in the early part of the thirteenth century, and the manner in which the communication with the south transept is effected, under the flying buttress, is worthy of notice. The east and west windows present indications, in their joint mouldings, of having been insertions of the same period, but they have been subsequently altered, and are, at present, in a very anomalous condition. The straight-sided arch of the south transept is well worthy of notice, and is particularly effective. The pulpit is of stone, and is a very good specimen of perpendicular work. It remains merely to notice the font,—It is of the same date as the fonts at Winchester cathedral, and St. Michael's church, Southampton, and is the work of the same individual. The material of these fonts has been described as black marble, but I have been informed by a competent authority that they are of blue lias. The spire is of lead, and from the character of the corbel table which finishes the tower, and is, probably, of the same date, I should assign its erection to the early part of the thirteenth century, the same date already mentioned as that of the aisles. In the south-western window of the tower is still suspended the tintinabulum or saint's bell, by which appellation it is still distinguished.

The Rev. C. H. Hartshorne contributed the following paper on

PORCHESTER CASTLE.

The natural position of Porchester rendered it eligible as an early fortress as soon as the Romans had gained a footing in Great Britain; the precise age of it is uncertain, but probably later than the works at Richborough, Pevensey, and Dover. The inhabitants of Hampshire having assisted those of Brittany in their revolt against the youthful Cæsars, urged Cæsar the following year to undertake the conquest of Britain. His landing-place doubtful, but effected exactly 1900 years back. In the uncertainty as to the precise dates of the different Roman fortresses on the southern coast, it is essential to examine the modes of construction employed in the works themselves, since this plan will exhibit the close analogy and characteristic marks of Roman architecture in England, with what is observable on the opposite coast; and shew that all the military works of that age are precisely the same in their principles. The works on the coast are the earliest; and as the conquest of the country extended, the same quadrangular forms of encampment followed its progress. The foundations of these buildings, upon examination, shew them to have been laid in conformity to the rules given by Vitruvius. The towers on the walls, the modes adopted to give them stability, and the method of binding them together, by means of Roman brick, the bad building materials employed in the work, are all in obedience to the precepts of this great architect, as shewn at Leicester, Lincoln, Wroxeter, Burgh, Richborough, Dover, Porchester, and other places. The same system, in fact, prevails from Caerwent and Caernarvon to Dover and Silchester; and from Lillebonne and Soissons to Autun in France. The durability of these tiles is occasioned by the clay having been thrown up a long time previously to its being used. The more important question of cements was next entered upon, from which it appeared that by a careful analysis having been made of several, they were found to agree with the rules of Vitruvius, and, moreover, to shew that their peculiar hardness depends upon their coarseness, which hastens crystallization, and causes the latent cohesiveness of the slaked lime to be brought into action, so that the mass became more perfectly carbonated. By the application of this kind of inquiry it is proved that Porchester still exhibits, notwithstanding the continued repairs it has undergone, from the reign of Henry II. to the present day, indisputable marks of its high antiquity. But there is no connecting link between the genuine Roman work of the second century and the Norman keep of the twelfth. This keep, which was the temporary residence of King John on nineteen different occasions, gives a curious insight into the domestic inconveniences of the early English monarchs, who, when compelled to stay within doors, must have passed much of their time in murky twilight,—a gloom they tried to dissipate by the great quantity of wine that was always ordered to precede their visits. These castles were always held by constables under the crown, and garrisoned by its tenants, who were bound to perform service here during time of war, on which tenure they frequently held their estates. During the prevailing taste for the study of ecclesiastical architecture, it is to be feared that the military remains of England, which do not make the same sacred appeals for preservation, do not receive the attention that patriotism should excite, and are suffered to perish without any exertions being made to record their character. Yet they must ever be dear to the history of our country, as having been at once its terror and safeguard. Structures, it is true, that rose at the bidding of ambitious rulers, and at a time when the upper classes tyrannically repressed every exertion that aimed at extending the natural rights of society, yet are still to be preserved as the memorials of a despotism which civilization has overthrown, to shew posterity that the misery and rapine inseparable from feudalism has been transferred from bitter endurance to the pages of history, or the records of national injustice, and to teach them how dearly those privileges should be cherished which a gracious sovereign has ratified to a united people. Stained as these fabrics may be by the deeds of unrelenting and merciless men, still let their tottering walls be kept from entire destruction, were it only to afford a sequestered spot where the unlettered hind may gaze in mute astonishment and moralize, where the painter may gather up those broken lines of beauty that charm and captivate the eye when traced upon his canvas, and where the exploits of chivalry — the songs of wandering minstrels — the fictions of legendary lore — and the charities of holy men may become idealised by the creations of poetry.

Our notice of the papers read already engrosses more space that we can spare, and only leaves us room to mention briefly, that at a general meeting held on Monday last, Lord Northampton in the chair, the name of this division of the old society was changed to "*The Archæological Institute of Great Britain and Ireland.*" Lord Northampton was elected president for the ensuing year, and York was fixed on as the next meeting-place. We highly applaud the committee for the alteration in the title, and trust that the two societies will now separately pursue their important objects each in their own way and without collision.

ENGLISH CARVINGS.

We have recently examined with much gratification a number of beautiful carvings by Mr. Rogers, of Newport street; the more so because some of them are executed for a foreigner, and are to be sent to Paris. We allude particularly to the decorations of a cabinet for the new mansion of Signor Mario, in Paris. The frieze is composed of grotesques, masks, the infant genii sporting in the foliage; the tablets below have boldly sculptured trophies of the sports, shields, and monograms. Above the cornice are six Flamingo-like boys half life size, representing the seasons, &c. In another room is an enriched border for a picture, from "Spenser's Faery Queen," 8 feet high, 6 feet wide, projecting about 16 inches; this is composed of the lightest Venetian foliage, bound together with garlands of flowers, in which are gambolling boys with musical instruments, mounted with the bust of Queen Elizabeth, and a scarf to be chased in the manner of the old Venetian work.

Mr. Rogers has addressed a letter to us denying the truth of a remark on him in the communication signed "Justice," which appeared in our columns last week. As to his personal skill in carving (a matter with which, excepting in connection with the terms of the Government competition, we should not allow any remark in our journals), Mr. Rogers remarks that he "served seven years to it with the late David Mc Lauchaulan, and therefore ought to know something about it. I have created, by my own industry during the last twenty years, a *large* business, and have been rewarded by liberal patronage from almost every capital in Europe, as well as in my own country, where her Majesty's Commissioners awarded me the most unqualified and marked approbation.

In reference to the workman whose name was mentioned as one of my best men, I *never* had a man of that name in my establishment; but in looking over my books, I find in 1837, during an excess of business, that several outdoor journeymen as supernumeraries were employed, and that *one of that name* had three weeks' work. What impression that could have made on the carvings sent to St. James's Bazaar (as their value was six or eight hundred pounds), I leave you to judge."

MACHINE FOR MAKING BRICKS FROM UNTEMPERED CLAY.

A PATENT for this purpose has lately been granted in America to Mr. Benjamin H. Brown. The following abridgment is from Mr. Keller's reports in the *Franklin Journal*.

The clay, as it is taken from the bank, is deposited in a hopper by elevators, and from the hopper it passes between two rollers, that move with different velocities, by which it is drawn through in thin cakes, and thrown on to a set of permanent teeth, and there cut up by the action of sets of teeth on a roller that works between the permanent teeth. It is then conducted by a spout into a moveable mould which, when filled, slides under a piston, actuated by a cam, to be compressed and formed into a brick, which is then discharged by a follower, actuated by another cam that forms the bed of the mould.

Claim.—"I do not claim the use of the cams for operating the pistons in pressing brick, nor do I claim the manner in which the bricks are received, compressed, and delivered; but what I do claim as my invention, and which I desire to secure by letters patent, is the arrangement of the two cams for effecting the pressure and delivery of the bricks, in combination with the pistons and moveable mould. I also claim the combination of the rollers and pins for pulverizing the clay as above described."

SETTING OUT CURVES ON RAILWAYS.

SIR,—Permit me, through the medium of your valuable columns, to express my obligation for the very useful information given by Mr. Hawkins respecting the setting out of curves on railways. Although I have never had any practice in railway surveying, yet I have taken considerable interest in the subject; it may not, therefore, be deemed presumptuous in me to offer the following method (in addition to those already given by Mr. Hawkins), for setting out a new tangent to the curve, which presented itself to me whilst investigating the formula given in your journal.

Referring to the diagram (in Builder, July 26th), let D be the last ascertained point in the curve from whence it is required to set off the new tangent. From A, lay off on A I

a line equal to $\frac{A B + B D}{2}$; and from the point thus determined ranged forward through H, will be the tangent required. E. NUGENT.

Ordnance Trigonometrical Survey Office, Preston.

*** If our correspondent will reconsider the formula given by Mr. Hawkins, he will find that it is a reduction from the above expression.

ARCHITECTS' DESIGNS.

We have received a letter from Mr. Cooper, Architect of the "Booksellers' Provident Retreat," referred to in our last number, complaining, as we had not ourselves seen the design, that we had inserted the opinion of some who had. If architects will not furnish us with information of their works, or afford us opportunities for judging of them by lithographs, &c., when published, and in some cases even neglect to reply to a polite inquiry, they must take the chance of being misrepresented in ignorance. We have yet to learn, however, that our informant's opinion of Mr. Cooper's design is unsound.

ARUNDEL CASTLE.—The Duke of Norfolk has given permission to view the exterior of Arundel castle, and the keep, on Mondays and Fridays during the season.

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